

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 March 2005 (10.03.2005)

PCT

(10) International Publication Number
WO 2005/022923 A3

- (51) International Patent Classification⁷: **H04N 7/36**
- (21) International Application Number:
PCT/US2004/027432
- (22) International Filing Date: 24 August 2004 (24.08.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/497,814 26 August 2003 (26.08.2003) US
- (71) Applicant (for all designated States except US): **THOMSON LICENSING S.A.** [FR/FR]; 46, Quai A. Le Gallo, F-92100 Boulogne-Billancourt (FR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **TOURAPIS,**

Alexandros [GR/US]; 20212 Heather Drive, West Windsor, NJ 08550 (US). **BOYCE, Jill, MacDonald** [US/US]; 3 Brandywine Court, Manalapan, NJ 07726 (US).

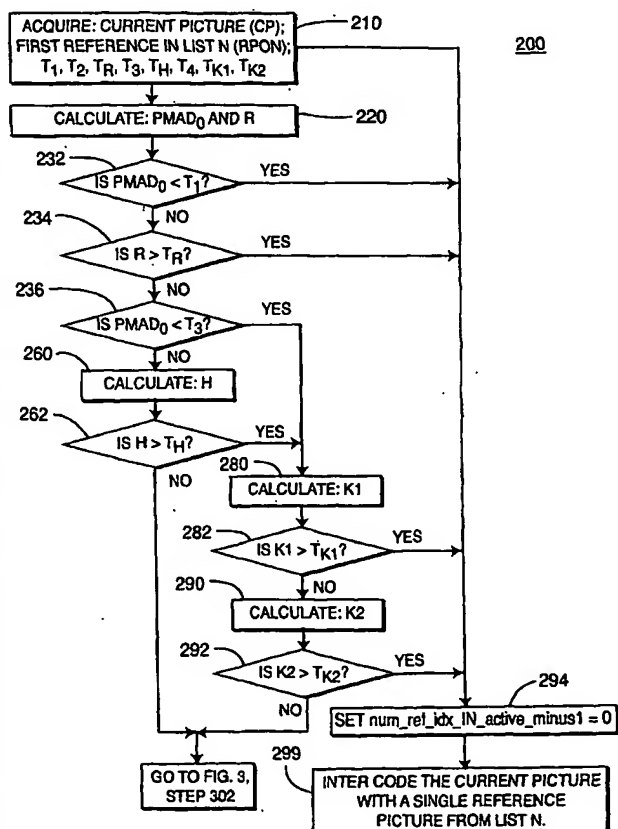
(74) Agents: **TRIPOLI, Joseph, S. et al.**; Two Independence Way, Suite #200, Princeton, NJ 08540 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: **METHOD AND APPARATUS FOR MINIMIZING NUMBER OF REFERENCE PICTURES USED FOR INTER-CODING**



(57) Abstract: A method (200) for minimizing and optimizing a list of active reference pictures to be used for (forward or backward) inter coding of a current picture, or of a pixel region (e.g., video object) within the current picture. Setting the number of active reference pictures in a list equal to one (294) based upon one or more decisions related to the pixel data and movement between the current picture and one or more reference pictures. Otherwise, minimizing the number of active reference pictures (300) in the list based upon one or more other decisions related to the pixel data and movement between the current picture and one or more reference pictures. Minimizing the number of active reference pictures in a second reference picture list based upon the utilization of reference pictures in the first reference picture list. A video encoder (700) processes data representing a two-dimensional video image which has been produced by a conventional commercially available video camera. The video encoder is adapted to determine, select, and to minimize the number of active reference pictures to be used to inter code a current picture. The bit stream transmitted by the encoder (700) can be decoded by decoders of the related art.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

(88) Date of publication of the international search report:

11 August 2005